

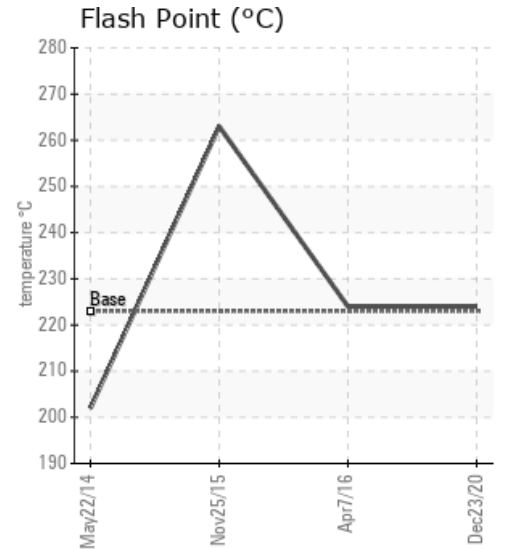
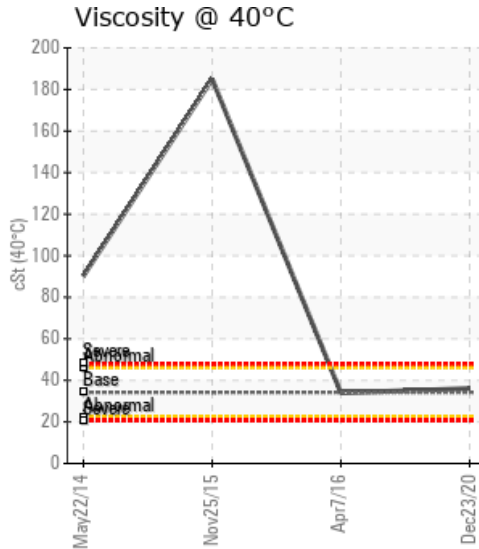
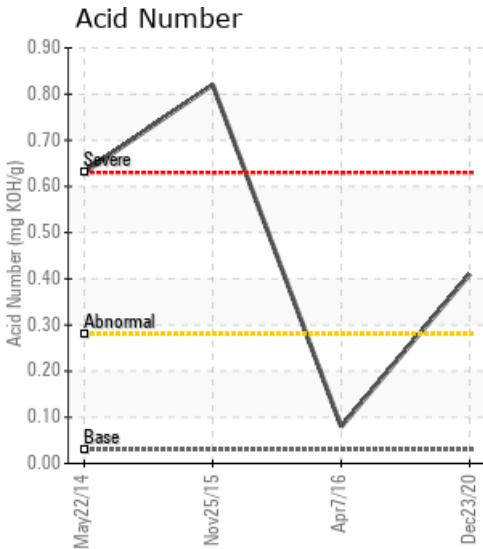
BIG TANK FORM

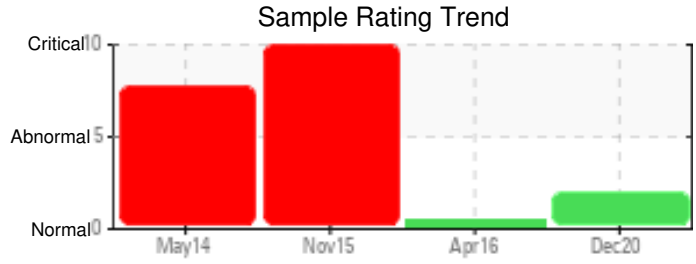
Customer: PTRHTF10147	System Information	Sample Information
MYRL AND ROYS PAVING INC 1300 N BAHNSON AVE SIOUX FALLS, SD 57103 USA Attn: Rich Kilmer Tel: (605)366-5220 E-Mail: hp1@lgeverist.com	System Volume: 1300 gal Bulk Operating Temp: 325F / 163C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: HYWAY	Lab No: 02396127 Analyst: Bill Quesnel CLS,OMA II,MLA-III,LLA-I Sample Date: 12/23/20 Received Date: 01/07/21 Completed: 01/29/21 Bill Quesnel CLS,OMA II,MLA-III,LLA-I

Recommendation:

Comments: Acid Number (AN) is abnormally high. (GCD) 90% Distillation Point is marginally high.

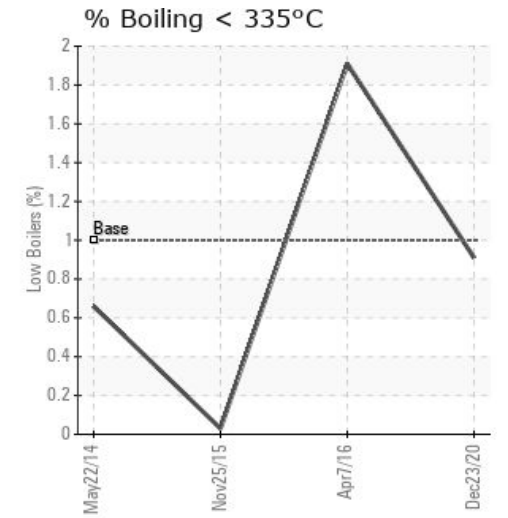
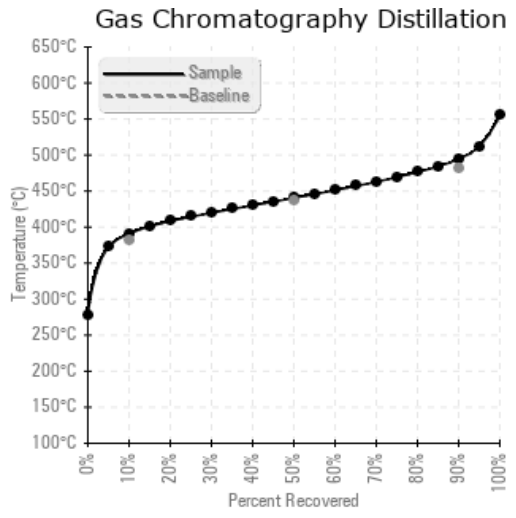
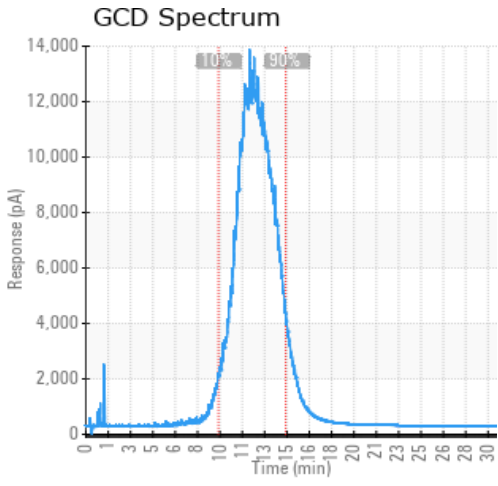
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
12/23/20	01/07/21	6y	Heaters/valve	435 / 224	29.3	36.1	0.41	0.385	735 / 391	825 / 440	922 / 495	0.91
04/07/16	04/15/16	7y	1 FOOT AHEAD OF PUMP	435 / 224	10.3	34.0	0.08	0.070	716 / 380	809 / 432	899 / 481	1.91
11/25/15	12/09/15	5y	24	505 / 263	82.0	185	0.82	1.19	747 / 397	869 / 465	988 / 531	0.03
05/22/14	06/11/14	0y	3FT BEFORE PUMP	396 / 202	178.5	90.3	0.63	0.228	741 / 394	877 / 469	995 / 535	0.66
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
12/23/20	73	0	0	0	3	0	0	0	0	0	0	2	2	0	0	0	0	0	0	1	7	0	6	4
04/07/16	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	5	3
11/25/15	157	0	0	0	0	2	0	0	0	0	0	397	2	0	0	0	0	0	1	4	667	0	21	18
05/22/14	121	0	0	0	0	2	0	0	0	0	1	400	2	0	0	0	0	0	0	4	631	0	22	17
Baseline Data			0	0						0			0	0					0				0	

Elemental analysis results (above) in parts per million (ppm). [10,000 ppm = 1.0%]



Historical Comments	
04/07/16	Missing information including product name. Assume new Petrotherm reference sample. Sample looks good.
11/25/15	Sodium and Calcium levels are severely high indicating contamination. Pentane insolubles are well above the condemning limit of 0.5%. TAN levels are also near the >1.0 limit. Viscosity at 40C is abnormally high. Thermal oil should be drained and the system flushed. System should then be refilled and resampled. Pentane Insolubles levels are severely high. Sodium ppm levels are severely high. COC Flash Point is severely high. Calcium ppm levels are severely high. Visc @ 40°C is abnormally high.
05/22/14	The oil viscosity is high and the high TAN shows signs of moderate to severe oxidation. The system needs cleaning and please take a sample a couple days after the entire cleaning operation is done and the system put back into commission. Sodium ppm levels are severely high. COC Flash Point is severely high. Calcium ppm levels are severely high.

Petro-Canada makes no representation or warranty of any kind, either express or implied, as to the accuracy or completeness of the analysis and assumes no responsibility and shall have no liability whatsoever with respect to such analysis, or a party's use of it. Petro-Canada is a division of HollyFrontier Corporation.